

LOI No. RAT-7-77015  
April 24, 2007  
Amendment No. 2

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RESPONDERS:

SUBJECT: Amendment No. 2 to Solicitation for Letters of Interest (LOI) No. RAT-7-77015,  
"Solar America Initiative (SAI) PV Technology Incubator".

Amendment No. 2 is being issued to provide NREL responses to questions received to date regarding the subject Solicitation.

1. Do you require submitting a module prototype before the award?

Answer: No. The Responder must demonstrate a proof-of-concept to the satisfaction of the reviewers in the response. This is not a requirement of the LOI before the award is made.

2. Could we have access to these slides and questions?

Answer: These have been posted to the website at  
[http://www.nrel.gov/business\\_opportunities/solicitations\\_rfps.html](http://www.nrel.gov/business_opportunities/solicitations_rfps.html)

3. Is partnership required or suggested?

Answer: Partnership is not required.

4. If module development requires more than 18 months, should the LOI outline what would remain to be developed in a second (follow-on) incubator award?

Answer: Yes. The intent of this Solicitation is to provide support for development of module prototypes that could be commercialized by 2010. If the Responder will require a follow-on award of 18 months following the initial award to reach these goals, the Responder should provide a high-level plan for the additional work that will be required in a second 18-month award in order to deliver a module prototype via pilot-scale production by 2010.

5. Is NREL interested in new metrology techniques under this solicitation or just materials?

Answer: Topic areas are described in Section 5. of the LOI and are not limited to those stated. However, the intent of this Solicitation is to deliver new module prototypes and demonstrate new production processes – if new metrology techniques are a part of a project that will deliver these outcomes, then they are acceptable scope.

6. How many other 9-month LOIs are planned? Will later LOIs require 2010 commercialization?

Answer: Subject to funding availability, NREL will be issuing LOI's every 9 months. Future solicitations may target commercialization dates of later than 2010, in recognition of the need for 18-36 months to achieve progress from initial PV "coupon cells" to prototype modules and pilot production.

7. Is exit criteria of >3 MW absolute within 18 months or a will a pathway be accepted?

Answer: The successful exit criteria provided to potential Responders are general guidelines. The guidelines are flexible – Responders may be more or less advanced than the stated entrance criteria at the time of response. The goal of the incubator program is to get Responders to pilot production of >3MW of prototype modules in preparation for a commercial ramp-up by 2010 – so Responders may take up to 36 months to achieve these goals (through a second follow-on award).

8. There were 3 topics called out in Martha's 2/7/07 presentation, related to inverters and systems -- under what program will those be considered for funding?

Answer: The DOE Solar Program will be issuing a separate solicitation to develop new prototype inverters, other power electronics components, and energy management systems. For information regarding this solicitation or for other funding opportunities under the SAI, please see: [http://www1.eere.energy.gov/solar/solar\\_america/funding\\_opportunities.html](http://www1.eere.energy.gov/solar/solar_america/funding_opportunities.html)

9. Are prior SAI awardees excluded from this LOI?

Answer: Not necessarily, however this Solicitation will accept Responses from U.S. small businesses only – this was not a restriction for the TPP solicitation. Proposals can not duplicate tasks that will be funded through any awarded TPP projects.

10. If a deliverable is a 1 kW item to a beta site, does that count? It may be 10 ft in size. Does it have to be delivered to NREL or does it count if NREL verifies at beta site?

Answer: It is not essential that deliverables be tested on-site at NREL, provided that the Responder proposes a clear mechanism for verifying the performance of prototype modules at other locations. The deliverables (in the form of data, site visit, etc.) must also permit verification of achieving a 3 MW pilot-scale production level.

11. What is the level of analysis and interpretation for "system" in "Novel systems integration approaches"? Does this mean macro-level innovation systems, e.g. inter-institutional cooperation and organization, or technical-level systems, e.g. integrating PV-generated electricity into the electrical grid?

Answer: For purposes of this LOI, Responders addressing systems integration approaches should focus on integration of PV modules with other components within a PV system design (inclusive of DC-generation, AC power conversion, structural elements, and other controls/power electronics), and possibly any novel approaches for integration of the total PV system with the electrical grid. If discussion of "inter-institutional cooperation and organization" is relevant to the value proposition for the module technology being proposed under the LOI, then it may be discussed – but reviewers will be primarily interested in understanding the technical integration of the proposed module design with the remainder of a PV system.

12. Can the proposed tasks be focused on multiple Tier2 TIOs or do they have to be only on ONE Tier 2 TIO (under modules)?

Answer: Responders need not limit themselves to a single Tier 2 TIO within the Module area – research tasks may address multiple improvements to module design factors, performance parameters, manufacturing processes, etc.

13. Other topics are listed on NREL website including Novel Systems Integration. Does this refer to high level novel engineering processes and workflows (systems engineering) or more low- level fabrication techniques such as novel deposition techniques?

Answer: For purposes of this LOI, Responders addressing systems integration approaches should focus on integration of PV modules with other components within a PV system design (inclusive of DC-generation, AC power conversion, structural elements, and other controls/power electronics), and possibly any novel approaches for integration of the total PV system with the electrical grid. Systems engineering of manufacturing equipment and processes is also of interest, and should be discussed where improvements will result in module performance improvements or cost reductions.

14. On the bottom of p 3 it says "prototype technologies will have already completed proof-of-concept". How will proof-of-concept devices be evaluated? Does this have to be done by the time of submission? Is it sufficient to include proof-of-concept data in the LOI?

Answer: The burden is on the Responder to convince the reviewers that this is truly a proven concept, where elements of the PV device or fabrication process diverge from current commercial practices. "Proof" should take the form of data that proves the functionality and key attributes of the new device or process, such as I-V curves and other descriptive data from characterization of a sample cell or measurement of deposition rates observed during implementation of a new fabrication process.

15. How mature does the technology need to be, i.e., what is the entry point for a candidate technology?

Answer: Responders may propose under this LOI provided that they have fabricated a working PV device using the process that they are proposing for further development under their LOI response. If the Responder has further developed this device into a prototype module and/or pilot production, there will be sufficient flexibility to allow for funding under this LOI – provided that they are not already in full-scale commercial production of that prototype (The purpose of this LOI is to support advancement of device and process technology to the point where pilot production can transition to commercial scale-up and module sales).

16. We are a novel approach to solar cells that has resurrected an approach patented in 1960 but with a very cost effective manufacturing approach. We have the research and a sample device using our approach. Are we in this solicitation or in the Device and process proof of concept?

Answer: It is left to the Responder to respond to the solicitation they feel is appropriate. If a working cell has been produced using the process before, and data can be submitted to prove this, the Responder would be eligible to submit a response for this LOI.

17. Please clarify your earlier statement regarding emphasis on Tier 2.

Answer: It is expected that Responders will focus on Tier 2 (or lower) level TIOs for a single component of the MODULE Tier 1 TIO. That is to say that Responders will focus on improvements to the design features and manufacturing processes for elements of a PV module (e.g. barrier coatings and encapsulation, absorber layers and desposition, contacts and metallization, etc.).

18. How many other 9-month LOIs are planned? Will later LOIs require 2010?

Answer: Subject to funding availability, NREL will be issuing LOI's every 9 months. Future solicitations may target commercialization dates of later than 2010, in recognition of the need for 18-36 months to achieve progress from initial PV "coupon cells" to prototype modules and pilot production.

19. Can you please define the size of "coupon-scale"?

Answer: There is no size specification of a coupon, or sub-module in the LOI. A coupon is a test sample/device

20. Is the intent of this proposal to deliver a complete system with a scale-up to 3 MW?

Answer: The intent of the LOI is for the successful Responder to be able to exit with >3MW/year pilot production at the completion of their "Incubator" project.

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21. We would like to know the cost metrics, is it one of the key points to show that the proposed efforts would lead to a low cost module?

Answer: This is one of the Key Performance Parameters (KPPs) in Section 4.2 that you should address as a Responder. These will be evaluated according to the LOI.

22. Just to verify that there is no required travel as part of this Solicitation?

Answer: The Responder must determine any and all costs deemed necessary for the project. If a Responder is selected for award, a detailed SOW specific to the Responder's proposal will be prepared and the Responder asked to submit a revised proposal based on this revised SOW. It is at this point that more detailed discussions regarding all anticipated project costs will be undertaken. Responders should expect to send a representative to at least one (1) review meeting during the course of the project, but no further travel is expected to be required.

23. In 13.2, both section III and section IV want a Gantt chart, is there some duplication here, or am I missing a critical distinction between what each section wants? page 15 - 17.

Answer: Section III is the Scope of Work – Technical/Project Plan and addresses the technical aspects of what is involved in the overall Project Plan. It is critical that the specific activities identified in this section are clearly linked to their impact on the identified TIOs and KPPs. Section IV addresses the specific Project Plan in terms of how to lay out the milestones and deliverable schedules.

24. Can a low Si concentrator at 2.2X be considered within the scope of the “Low-X Si modules, 3-10X”?

Answer: Topic areas are described in Section 5 of the LOI and are not limited to those stated. The topic areas have been provided as guidance for the types of technologies that are of interest, but are not exclusive. If a concentrator module at 2.2X presents a desirable value proposition, it is certainly eligible under this LOI.

25. The exit Criterion requires “prototype modules and pilot production demonstration > 3MW/year” Does that mean that 3MW/year pilot production is expected at the end of 18 months or in 2010? Or does it mean that the proposer has to construct a 3MW/year pilot line?

Answer: The intent of this Solicitation is to provide support for development of module prototypes that could be commercialized by 2010. If the Responder will require a follow-on award of 18 months following the initial award to reach these goals, the Responder should provide a high-level plan for the additional work that will be required in a second 18-month award in order to deliver a module prototype via pilot-scale production by 2010.

26. Can funds that the company contributes as part of the 20% price participation be allocated toward capital equipment?

Answer: Yes. The Responder's proposal should identify all costs believed to be necessary to complete the work effort, including equipment. The LOI clearly states that all equipment must be acquired with funds provided by the Responder or the Responder's team.

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27. Can we invite overseas research labs to participate without cost sharing, no funds will be transferred to overseas participating institutions except post docs and short term visiting scientists?

Answer: The LOI does not necessarily exclude such participation. However, the LOI does require that "All efforts funded under this project shall be performed by a United States (U.S.) company in the United States or its territories".

28. Can federally funded labs be subcontractors?

Answer: The LOI states that "Federally Funded Research and Development Centers (FFRDCs) are not eligible for funding under this Solicitation and therefore cannot be lower-tier subcontractors."

29. Does the company have the right to IP developed under this funding?

Answer: Intellectual property provisions for research and development subcontracts with domestic small business concerns are detailed under NREL Appendix C-2. Said Appendix can be viewed via the NREL website [http://www.nrel.gov/business\\_opportunities/related\\_docs.html](http://www.nrel.gov/business_opportunities/related_docs.html).

30. If the LOI does not include a company, it is solely an academic institution, does this qualify under the solicitation?

Answer: No. The LOI states that "This Solicitation will accept Responses from U.S. small businesses only..." U.S. educational institutions are eligible to be lower-tier subcontractors to a Responder.

31. Is it possible for a U.S. company that has a certain percentage of foreign ownership to participate?

Answer: Yes. The LOI states that "All efforts funded under this project shall be performed by a United States (U.S.) company in the United States or its territories. A U.S. company is defined as a business incorporated or formed as a legal entity in the U.S."

32. If achieving 3MW will require more than NREL funding, should the budget reflect how the money will be raised?

Answer: Yes. The LOI states that "Any proposed funding amount exceeding the maximum funding level, as defined in Section 7, will be considered part of the Responder's Price Participation."

33. Can a company submit more than one LOI?

Answer: U.S. small businesses can be a "Responder" on only one (1) response to this LOI. U.S. small businesses, U.S. large businesses, U.S. non-profit entities, and U.S. educational institutions are eligible to be "lower-tier subcontractors" on more than one response to the LOI.

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34. What is NREL's policy on proprietary information?

Answer: Responders who include data in their LOIs that they do not want disclosed to the public for any purpose or used by the government or NREL, except for evaluation purposes shall mark the title page of the LOI and mark each page of data it wishes to restrict in accordance with the instructions contained under Section 14(b) of the LOI. Further, Responders who determine that proprietary data will be utilized in the subcontract work effort should pay particular attention to "Section 19. – Intellectual Property" of NREL's Representations and Certifications for Subcontracts (01/30/07) document referenced in the LOI. An electronic (PDF) copy of the document can be found at: [http://www.nrel.gov/business\\_opportunities/related\\_docs.html](http://www.nrel.gov/business_opportunities/related_docs.html).

35. Can state funds be used as matching funds?

Answer: The Responder would have to confirm the "source" of the state funds and any restrictions placed on the use of the funds. "Federal" funds cannot be utilized as matching funds under this federally funded solicitation.

36. You stated in the web conference that NREL could not be a subcontractor to an Incubator project. What if a company wants to access NREL equipment at the PDIL as part of the proposed project? Could such access be permitted on an hourly fee for access basis with awarded funds?

Answer: Responders may propose the use of NREL equipment at the PDIL as part of their project, however, there is no charge for use of the equipment in the PDIL. The PDIL is a facility open to use by any U.S. company, pending approval of proposals for use and availability of equipment and staff support. The Responder need only budget for time and resources required for their staff presence and any special tool integration while conducting research at the PDIL – NREL will not request compensation for use of its equipment or staff time.

37. Do we need to include all key suppliers as team members of just those essential for the development effort?

Answer: The use of the word "suppliers" suggests that the question pertains to those entities providing materials and supplies for the work effort. If this assumption is correct then the Responder does not need to identify these "suppliers" as team members. NREL does not track what would be considered expendable materials and supplies used during the course of the work effort retaining little if any value and little if any useful life after the completion of the work effort. The phrase "Team Members" is typically used to describe lower-tier subcontractors and consultants to the Responder.

38. Do all subcontractors of the project sign the LOI or just the top tier?

Answer: It is only necessary that the "Responder" sign the LOI.

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39. Do we need to include partnership agreements between the top tier and all subcontractors?

Answer: No.

40. Professional services versus subcontractors: some of the work can be conducted by professional service groups on a fee base or project base. Should they be included as team members (subcontractors)? Do we need to attach their quotes or simply indicate the estimate in the budget narrative?

Answer: Any lower-tier subcontractor or consultant to be compensated for their work through project funds should be identified. Quotes are not necessary.

41. The Representations and Certifications Form, Item 19 requires specifying proprietary data. Is it the descriptive title, summary data or detail accounts?

Answer: Descriptive titles would be sufficient at this time. If selected for award, a Responder will be asked to provide more detail.

42. Is the ceiling cost of the project \$3M including or excluding the company's contribution to the project?

Answer: The \$3M figure represents the maximum level of funding that NREL would provide for each individual award.

43. Is it possible for a University to be involved in a DOE laboratory partnership with NREL and also participate as a Subcontractor with a small business for this solicitation?

Answer: Yes

44. Can funds be used to rent or lease equipment?

Answer: If a Responder determines that a piece of equipment is necessary to complete the proposed work effort and the Responder elects to enter into an agreement to pay a fee for its usage then those costs would be allowable under the Solicitation as other direct costs.

45. Do simple materials have to be purchased through the Responder's price participation funds?

Answer: No. NREL would consider these as "expendable" materials and not equipment.

46. What is the payment schedule?

Answer: Payment schedules are negotiated with each Responder selected for award and are based on an agreed upon price to be paid for each deliverable.



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Except as otherwise stated in this amendment, the subject LOI remains unchanged.

Should questions arise please contact the undersigned via e-mail at [william\\_algiene@nrel.gov](mailto:william_algiene@nrel.gov).

Sincerely,

William L. Algiene  
Sr. Subcontract Administrator